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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/817,330	03/26/2001	Phillip C. Celaya	ONS00149	8912

7590 09/29/2003  
Robert D. Atkins  
ON Semiconductor  
Patent Administration Dept - MD A230  
P.O. Box 62890  
Phoenix, AZ 85082-2890

EXAMINER

PHAN, THIEM D

ART UNIT	PAPER NUMBER
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3729

13

DATE MAILED: 09/29/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/817,330

Applicant(s)

CELAYA ET AL.

Examiner

Tim Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 19-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## DETAILED ACTION

1. The amendment filed in Paper No. 12 (filed 6/25/03) has been fully considered and made of record.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 19-37 are rejected under 35 U.S.C. 102(a) as being anticipated by Kim (US 6,162,664) hereinafter '664.

**As applied to claims 19 and 32**, the '664 teaches a method of making a semiconductor chip package comprising the step of:

- providing a substrate for mounting a semiconductor die (Cf. fig. 8, elements 2 and 1)
- plating a lead-free conductive material made of Ni-Au (Cf. Fig. 5, element 60; column 4, lines 19 & 20) to project the lead-free first lead (Cf. Fig. 5, elements 40, 60 & 50) of copper (Cu) and Ni-Au (as alternative choice; Cf. column 4, lines 23-36) outwardly from the substrate (Cf. Fig. 8, element 2; column 1, line 20).

**As applied to claim 20**, the '664 teaches the mounting of semiconductor die (Cf. Fig. 8, element 1) on the substrate.

**As applied to claims 21-24**, the '664 teaches the forming of a signal path on the substrate where the wire bond is attached (Cf. Fig. 8, element 12) and a signal path feeding (Cf. Fig. 8, element 11) through the substrate, and the disposing of lead-free conductive material such as Cu and Ni-Au (Cf. Fig. 5, elements 40, 50 & 60) to extend the signal path at other end pad of the substrate.

**As applied to claims 25-27, 29-31 and 33-35**, the '664 teaches the process of photoetching and plating the lead-free conductive layer of Cu and Ni-Au to a certain thickness higher than 50 micrometers (Cf. Fig. 5, elements 40 & 60; column 4, lines 14-19; column 4, lines 18 & 24) at the exit of the feedthrough signal path, in an outward direction in order to maintain space between the package chip substrate and motherboard.

**As applied to claim 28**, the '664 teaches the wire bonding (Cf. Fig. 8, element 12) signal-connecting the semiconductor to the lead-free first or outside lead (Cf. Fig. 5 or 8, elements 40, 50 & 60).

**As applied to claims 36 and 37**, the '664 teaches a method of making a semiconductor chip package comprising the step of:

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- mounting a semiconductor die on a substrate (Cf. Fig. 8, elements 1 and 2)
- disposing a conductive signal path from the die and feeding through the substrate (Cf. Fig. 8, elements 12 & 11),
- disposing the conductive material on the exit of the feed-through signal path to form the outwardly projecting lead (Cf. Fig. 8, element 40) by plating (Cf. column 4, lines 14-19).

### ***Response to Arguments***

4. Applicants' arguments filed 6/25/03 have been fully considered but they are not persuasive for the following reasons:

Applicants recite *inter alia* "lead-free lead" (Cf. Claims 19, 23, 28, 29, 31 & 32). The Patent Office's position, as stated in the preceding Action, was and continues to be that since the '664 teaches the plating or forming of the lead-free projection or lead of conductive material such as Cu and Ni-Au (Cf. Fig. 5, elements 40, 50 & 60; column 4, lines 12+) as an alternate choice.

5. With the remainder of the claims rejected under either 35 USC 102 or 35 USC 103, they stand rejected as carefully articulated in the previous and current Office Action and in Responses to Remarks in paragraph 4 above.

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*Conclusion*

6. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tim Phan whose telephone number is 703-605-0707. The examiner can normally be reached on Monday - Friday, 9AM - 5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter VO can be reached on 703-308-1789. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1148.

TP

Tim Phan  
Examiner  
Art Unit 3729

CJA

CARL J. ARBES  
PRIMARY EXAMINER

tp  
September 17, 2003